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The Impact of Improved Chickpea Adoption on Household Welfare in Ethiopia

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Abstract

Chickpea is an affordable source of proteins and nutrients for poor households and improved varieties have a high value with potential for export. We analyse the impact of improved chickpea variety adoption on household welfare in Ethiopia utilising three rounds of panel data (2008, 2010 and 2014) collected in three districts of Ethiopia covering 607 households. The decision to adopt improved varieties is potentially endogenous on household welfare and other observed or unobserved characteristics. We therefore compared the welfare outcomes of poor adopters and non-adopters to analyse whether households with similar resources experience different outcomes. Moreover, based on their adoption history households were allocated to five categories (adopters / non-adopters, late-adopters, dis-adopters and mixed) to compare welfare characteristics before and after adoption. We further addressed the problem of selection bias by estimating fixed effect panel models for the welfare regressions where expected (predicted) values of improved chickpea planting serves as an instrument for observed values. Finally, by disaggregating the panel analysis of poor versus better-off households we tested whether improved chickpea adoption is pro-poor. We established that adoption of improved chickpeas has increased from less than 50 to 80 percent of the total sample and 90 percent of chickpea growers, with improved chickpea contributing up to 25 percent of total household income. Improved chickpeas had higher net returns to both land and labour when compared to local varieties, based on higher productivity and prices. Accordingly, we found that improved chickpea adoption, as captured by both an adoption dummy and the land allocated to improved varieties, has had a strong positive impact on income per capita, assets and livestock ownership. Several wealthier households dis-adopted as they graduated to crops or off-farm activities with higher returns. First time or late-adopters, however, greatly benefited from adopting improved chickpea varieties. Our analysis thus confirms the importance of improved chickpea adoption for poverty and provides support for policies targeting poverty alleviation in rural areas.

Keywords: Ethiopia, household welfare, improved chickpeas, technology adoption